



10007649-1

PATENT APPLICATION

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant: Shell S. Simpson
Serial No.: 09/874,184
Conf. No.: 5611
Filed: 06/04/2001
For: SYSTEM AND METHOD FOR
PRINTING FROM A WEB
APPLICATION
Art Unit: 2155
Examiner: Duong, Oanh L.

I hereby certify that this paper is being deposited with the United States Postal Service as FIRST-CLASS mail in an envelope addressed to: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450, on this date.

7/7/05 *Roger D. Greer*
Date Registration No. *26184*
F-CLASS.WCM
Appr. February 20, 1998 Attorney for Applicant(s)

**DECLARATION OF ROGER D. GREER OF PRIOR INVENTION TO
OVERCOME CITED PUBLICATION (37 C.F.R. §1.131)**

1. I am an attorney of record for the above-identified patent application.
2. The above-referenced patent application was prepared in the offices of Greer, Burns & Crain of which I am a principal.
3. The application was prepared by attorney Grace Law, under my supervision. The application was completed and the declaration executed by the inventors Shell S. Simpson, Ward S. Foster and Kris R. Livingston on March 26, 2001, which pre-dates the filing date of May 30, 2001 of the Pineau U.S. patent application publication U.S. 2002/0181010 A1 as well as the filing date of May 21, 2001 of the Moyer et al. patent application publication U.S. 2002/0174206 A1. The patent application, including the declaration, is attached as Exhibit A.

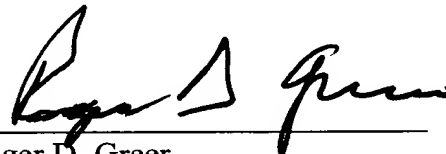
Exhibit A

4. The patent application clearly demonstrates the invention was completed prior to the effective dates of the Pineau and Moyer references.

5. As a person signing below, I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true, and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment or both under 18 U.S.C. §1001, and that such willful statements may jeopardize the validity of this application or any patent issued thereon.

Dated: _____

7/7/05



Roger D. Greer

GREER, BURNS & CRAIN, LTD.
300 South Wacker Drive, Suite 2500
Chicago, Illinois 60606
(312) 360-0080

Customer No. 24978



"Express Mail" mailing label number EL737390453US

Date of Deposit: Jun. 4, 2001

I hereby certify that this paper or fee is being deposited with the United States Postal Service "Express Mail Post Office to Addressee" services under 37 C.F.R. 1.10 on the date indicated above and is addressed to the Commissioner of Patents and Trademarks, Washington, D.C. 20231.

Typed Name of Person Mailing Paper or Fee: Betty Hinkle

Signature: Betty Hinkle

**PATENT APPLICATION
DOCKET NO. 10007649-1**

Entity: DLP.B01 Docket # 10007649-1

Date Filed: 6/4/01 Keywords ✓

Credited Atty: JRM Writer 6001

Outside Counsel: Roger Green

SYSTEM AND METHOD FOR PRINTING FROM A WEB APPLICATION

INVENTOR(S):

Shell S. Simpson
Ward S. Foster
Kris R. Livingston

"Express Mail" mailing label number EL737390453US

Date of Deposit Jan. 4, 2001

I hereby certify that this paper or fee is being deposited with the United States Postal Service "Express Mail Post Office to Addressee" services under 37 C.F.R. 1.10 on the date indicated above and is addressed to the Commissioner of Patents and Trademarks, Washington, D.C. 20231.

Typed Name of Person Mailing Paper or Fee: Betty Hinkle

Signature: Betty Hinkle

**PATENT APPLICATION
DOCKET NO. 10007649-1**

SYSTEM AND METHOD FOR PRINTING FROM A WEB APPLICATION

INVENTOR(S):

Shell S. Simpson
Ward S. Foster
Kris R. Livingston

1 Inventors: Shell Simpson; Ward S. Foster; Kris R. Livingston

2 SYSTEM AND METHOD FOR PRINTING FROM A WEB APPLICATION

3 The present invention generally relates to an improved method
4 and system for printing from a web application. More specifically, it relates to
5 an improved system and method for printing target data from a web application
6 used through a browser of a client computer that is operatively connected to a
7 web server providing the web application.

8 The use of web applications has been growing over the years as
9 the Internet gets more sophisticated. Because most web applications are
10 designed to work with cross-platform browsers, they operate independently
11 from the operating system ("OS"). In other words, most web applications can
12 work with any operating systems, such as LINUX®, WINDOWS®, or
13 MACINTOSH®. As such, web applications are becoming an extremely
14 powerful tool on the Internet. Currently, most web pages from the web

1 application are printed through the functionality of the web browser, which, in
2 turn, makes use of the underlying operating system. However, printing from
3 browsers is known to frequently produce bad results. The printed documents
4 typically match the display page on the browser, which is optimized for
5 viewing rather than printing and often creates undesired results. Furthermore,
6 as a result of numerous browsers that are currently being used, the printing of
7 web pages varies greatly from browser to browser, resulting in inconsistent
8 printing.

9 Consequently, there are current web applications that provide a
10 means of generating printable data from the web applications themselves in an
11 attempt to provide information optimized for printing to overcome the printing
12 problems caused by the browser. Adobe Acrobat is a widely available web
13 browser plug-in designed to read, display and print Portable Document Format
14 ("PDF") files from within a web browser. As a result of being integrated into
15 the browser, the user can preview the print output. However, there are still
16 limitations. Although the plug-ins, such as Adobe Acrobat, give users
17 previews of their print output, they do not provide a preview of the print output
18 in the context of the peripheral devices and/or services. The print output
19 displayed is simply a preview of the document with the formats that are set up
20 in the document, which may look different when the features or limitation of
21 the peripheral devices are added.

22 BRIEF SUMMARY OF THE INVENTION

23 The present invention is directed to an improved system and
24 method for printing target data from a web application. More particularly, the
25 system and method for printing target data from a web application used by a

1 browser of a client computer that is operatively connected to a web server
2 providing said web application.

3 The present invention provides a system that includes a client
4 computer having a browser for using the web application, a web server for
5 providing the web application, a web application content for providing the web
6 application on the browser, and a print destination server specified by the user
7 for printing the target data. The web application content further directs the
8 browser to the print destination server responsive to user print selection.

9 The present invention also provides a method that includes the
10 steps of sending a web application content by the web server to the browser
11 responsive to a request for web content by the browser, sending an URL
12 request for printing the target data responsive to user print selection on the web
13 application content, directing the browser to a print destination server indicated
14 by the URL request by the web application content, and printing the target data
15 according with user specified print configuration by the print destination
16 server.

17 The present invention further provides another method that
18 includes the steps of sending a web application content by a web server to a
19 browser responsive to a request for web content by the browser, sending a URL
20 request for printing the target data to the web server responsive to user print
21 selection on web application, constructing imaging data for the target data
22 responsive to the URL request, storing the imaging data to a personal imaging
23 repository, and printing the imaging data in accordance with a print
24 configuration specified by the print destination server.

25 The present invention further provides another method that
26 includes the steps of requesting to print the imaging data from the web
27 application to a print destination server by the browser, transferring imaging

1 data to a personal imaging repository by the web application responsive to the
2 print request by the browser, and printing the imaging data by the print
3 destination server. The personal imaging repository is an exchange
4 infrastructure between the imaging data and available web services.

5 DESCRIPTION OF THE DRAWINGS

6 FIGURE 1 is an architectural diagram of a client-server network
7 system in which the present invention can be implemented;

8 FIG. 2 is an architectural diagram of a second client-server
9 network system in which the present invention can be implemented;

10 FIG. 3 is a flow chart illustrating the preferred functionality of the
11 print method of the present invention;

12 FIG. 4 is a flow chart illustrating the preferred functionality of the
13 transfer method of the present invention;

14 FIG. 5 illustrates an exemplary page of the target data for printing
15 from the web application;

16 FIG. 6 illustrates an exemplary page of the print content from the
17 print destination server;

18 FIG. 7 illustrates an exemplary page of the print content from the
19 print destination server; and,

20 FIG. 8 illustrates an exemplary status page of the print content
21 from the print destination server.

22 GLOSSARY OF TERMS AND ACRONYMS

23 The following terms and acronyms are used throughout the
24 detailed description:

1 Client-Server. A model of interaction in a distributed system in
2 which a program at one site sends a request to a program at another site and
3 waits for a response. The requesting program is called the "client," and the
4 program which responds to the request is called the "server." In the context of
5 the World Wide Web (discussed below), the client is a "Web browser" (or
6 simply "browser") which runs on the computer of a user; the program which
7 responds to browser requests by serving Web pages, or other types of Web
8 content, is commonly referred to as a "Web server."

9 Composition store. Composition store refers to a network service
10 or a storage device for storing imaging composition(s) that can be accessed by
11 the user or other web services.

12 Content. A set of executable instructions that is served by a
13 server to a client and that is intended to be executed by the client so as to
14 provide the client with certain functionality. Web content refers to content that
15 is meant to be executed by operation of a Web browser. Web content,
16 therefore, may non-exhaustively include one or more of the following: HTML
17 code, SGML code, XML code, XSL code, CSS code, Java applet, JavaScript
18 and C-"Sharp" code.

19 Exchange infrastructure. An exchange infrastructure is a
20 collection of services distributed throughout a network that stores imaging data
21 associated with a particular user through a user profile.

22 Hyperlink. A navigational link from one document to another,
23 from one portion (or component) of a document to another, or to a Web
24 resource, such as a Java applet. Typically, a hyperlink is displayed as a
25 highlighted word or phrase that can be selected by clicking on it using a mouse
26 to jump to the associated document or document portion or to retrieve a
27 particular resource.

1 Hypertext System. A computer-based informational system in
2 which documents (and possibly other types of data entities) are linked together
3 via hyperlinks to form a user-navigable "web."

4 Imaging composition. An imaging composition comprises links
5 to imaging data serviced as a single unit.

6 Imaging data. Imaging data refers to digital data capable of being
7 represented as two dimensional graphics, such as a Portable Document Format
8 ("PDF") file or a Joint Photographic Experts Group ("JPEG") file.

9 Imaging data store. Imaging data store refers to a network
10 service or a storage device for storing imaging data that can be accessed by the
11 user or other network services. The imaging data store preferably accepts the
12 imaging data in multiple standard file formats, and the imaging data is
13 converted into these file formats when necessary depending on the
14 implementation.

15 Internet. A collection of interconnected or disconnected networks
16 (public and/or private) that are linked together by a set of standard protocols
17 (such as TCP/IP and HTTP) to form a global, distributed network. (While this
18 term is intended to refer to what is now commonly known as the Internet, it is
19 also intended to encompass variations which may be made in the future,
20 including changes and additions to existing standard protocols.)

21 World Wide Web ("Web"). Used herein to refer generally to both
22 (i) a distributed collection of interlinked, user-viewable hypertext documents
23 (commonly referred to as Web documents or Web pages) that are accessible via
24 the Internet, and (ii) the client and server software components which provide
25 user access to such documents using standardized Internet protocols. Currently,
26 the primary standard protocol for allowing applications to locate and acquire
27 Web documents is HTTP, and the Web pages are encoded using HTML.

1 However, the terms "Web" and "World Wide Web" are intended to encompass
 2 future markup languages and transport protocols which may be used in place of
 3 (or in addition to) HTML and HTTP.

4 Web Site. A computer system that serves informational content
 5 over a network using the standard protocols of the World Wide Web.
 6 Typically, a Web site corresponds to a particular Internet domain name, such as
 7 "HP.com," and includes the content associated with a particular organization.
 8 As used herein, the term is generally intended to encompass both (i) the
 9 hardware/software server components that serve the informational content over
 10 the network, and (ii) the "back end" hardware/software components, including
 11 any non-standard or specialized components, that interact with the server
 12 components to perform services for Web site users. Importantly, a Web Site
 13 can have additional functionality, for example, a Web site may have the ability
 14 to print documents, scan documents, etc.

15 HTML (HyperText Markup Language). A standard coding
 16 convention and set of codes for attaching presentation and linking attributes to
 17 informational content within documents. (HTML 2.0 is currently the primary
 18 standard used for generating Web documents.) During a document authoring
 19 stage, the HTML codes (referred to as "tags") are embedded within the
 20 informational content of the document. When the Web document (or HTML
 21 document) is subsequently transferred from a Web server to a browser, the
 22 codes are interpreted by the browser and used to display the document.
 23 Additionally in specifying how the Web browser is to display the document,
 24 HTML tags can be used to create links to other Web documents (commonly
 25 referred to as "hyperlinks"). For more information on HTML, see Ian S.
 26 Graham, The HTML Source Book, John Wiley and Sons, Inc., 1995 (ISBN
 27 0471-11894-4).

1 HTTP (HyperText Transport Protocol). The standard World
2 Wide Web client-server protocol used for the exchange of information (such as
3 HTML documents, and client requests for such documents) between a browser
4 and a Web server. HTTP includes a number of different types of messages
5 which can be sent from the client to the server to request different types of
6 server actions. For example, a "GET" message, which has the format GET
7 <URL>, causes the server to return the document or file located at the specified
8 URL.

9 URL (Uniform Resource Locator). A unique address which fully
10 specifies the location of a file or other resource on the Internet or a network.
11 The general format of a URL is protocol://machine address:port/path/filename.

12 User Information. User information is identification and security
13 information used in accessing imaging composition(s) and imaging data
14 associated with a particular user profile. It is preferably accessed either
15 directly or indirectly through methods provided by an extension component
16 integrated into the web browser.

17 PDA (Personal Digital Assistant). A small hand-held computer
18 used to write notes, track appointments, manage email and browse the web,
19 generally with far less storage capacity than a desktop computer.

20 Personal imaging repository. A personal imaging repository is a
21 conceptual term describing the exchange infrastructure used to exchange
22 imaging composition and imaging data with web services. Users are associated
23 with their imaging data through user profiles.

24 DETAILED DESCRIPTION

25 Broadly stated, the present invention is directed to an improved
26 system and method for printing from a web application. The system and

1 method provide printing from a web application that is independent of the
2 configuration of the operating system. In addition, since the print destination
3 server can return with specific print content that relates to a selected device, the
4 present invention allows a preview of the print job in the context of the devices
5 and/or services offered by the print destination server.

6 The client-server network system in which the present invention
7 can be implemented is shown in FIG. 1 and indicated generally at 10. A client
8 machine 12 is connected to a first server machine 14 and a second server
9 machine 16 via the Internet 18. The client machine 12 includes a browser 20
10 and, preferably, a personal imaging repository 22. The browser 20 further
11 includes an extension component (extension) 24 for accessing user information
12 26, which provides an interface between content executing in the browser 20
13 and the personal imaging repository 22. More specifically, the user
14 information 26 is used for associating user profiles to their own personal
15 imaging repository. It should be noted that the user profile can associate
16 different users or groups to the personal imaging repository. For example, the
17 user profile can associate a single user to a particular personal imaging
18 repository, but, at the same time, this user can also have multiple user profiles,
19 resulting in multiple personal imaging repositories associated to a single user.
20 Alternatively, the user profile can associate a group having multiple users to a
21 particular personal imaging repository. The personal imaging repository, in
22 this scenario, can be used by a group having a common association, such as a
23 group project. As described, the user profile can be defined with great
24 discretion and flexibility, and these other implementations are contemplated
25 and within the scope of the present invention.

26 The browser uses a web application content 28 that is provided
27 by a web server 30. When the user selects print in the web application content,

1 the web server 30, among other things, directs the browser 20 to the print
2 destination. Although one client machine 12 and two server machines 14, 16
3 are shown as examples, the preferred implementation would likely involve
4 many server machines to which the client machine has access and can
5 communicate. For better readability, "a" client machine or server machine will
6 be sometimes referred to. However, it should be understood that the use of "a"
7 also refers to "one or more".

8 The first server machine 14 includes a first server 34. When the
9 browser 20 is directed to the first server 34 indicated by a Uniform Resource
10 Locator ("URL"), a first content 36 is served by the first server to the browser
11 20. Each content 36 is preconfigured with specific instructions depending on
12 the type of service the server machine provides. Similarly, the second server
13 machine 16 includes a second server 38 with a second content 40. Generally,
14 the contents 36, 40 are likely different, because the services and/or access to
15 devices provided by the servers are different. In this example, the first server
16 machine 14 is connected to a single printing device 42, whereas the second
17 server machine serves multiple printing devices 44. Consequently, the first
18 content 36 and second content 40 will be very different, each including
19 separate instructions to the browser 20.

20 Although it is shown that the servers only represent printing
21 devices in this example, the server can provide other services. For example,
22 the server can be an auction web site, such as ebay.com, which makes an
23 auction page for the user when a graphic file is printed to the web site. As one
24 can see, the type of services and/or devices the servers can offer is limitless. In
25 the present invention, the user can "print" to any one of services. As a result,
26 the use of the word "print" is intended to be given a very broad definition,
27 which can be used with many available devices or services. Whatever the

1 services and/or device the servers provide, the content can include the
2 instructions needed for the configuration. Given the wide usage of the present
3 invention, it is preferred that a personal imaging repository 22 be implemented
4 with the present invention, which stores data that can be accessed by these
5 servers.

6 In the preferred embodiment, the personal imaging repository 22
7 includes a composition store 46 for storing imaging composition(s) of the
8 imaging data that are serviced as a single unit and an imaging data store 48,
9 i.e., digital memory, for storing the imaging data. An imaging composition
10 preferably comprises links to the imaging data, which can be located at another
11 service. As a result, the composition store 46 stores only the imaging
12 compositions. The imaging data store 48, on the other hand, is any imaging
13 data store located on any computer that contains the imaging data. More
14 specifically, each web service can have its own imaging data store 48 available
15 to the public.

16 For example, at some earlier time, a user may print an article
17 from a web service site, resulting in an imaging composition being created and
18 stored in the user's composition store 46. The imaging composition contains
19 only the link to the imaging data for this article stored on the web service site
20 36. Consequently, the imaging data for the article is not in the imaging data
21 store 48 located on the client machine 12. Rather, the imaging data is stored in
22 the imaging data store 48 located on the web service site. Of course, users will
23 have an imaging data store 48 that belongs to their user identification where
24 they can store imaging data, which is the imaging data store shown in the client
25 machine 12. As a result, the term "personal imaging repository" 22 is meant as
26 a conceptual term for an exchange infrastructure between the imaging data and
27 the available web services on the Internet. Similarly, the term "web" denotes

1 millions of distinct servers that comprise the web. However, the web does not
2 actually do anything itself. In the present invention, the servers serving the
3 composition store 46 and the imaging data store 48 are physical
4 implementations of the personal imaging repository as a concept.

5 It should be noted that the personal imaging repository 22 can
6 represent any type of data storage device. In fact, the data storage device 22
7 does not necessarily have to be located with the client machine 12. The
8 personal imaging repository 22 can be located, for example, on another
9 machine, which the client machine can access through the Internet. Although it
10 is preferred currently to include the personal imaging repository 22 with the
11 client machine 12, this would likely change as the bandwidth becomes faster
12 and the popularity of the personal digital assistant ("PDA") increases. These
13 alternative implementations should be considered to be within the scope of the
14 present invention. One preferred embodiment that is more tailored to faster
15 bandwidth or any client machine with limited storage capacity is shown in FIG.
16 2.

17 A second client-server network system is shown in FIG. 2, and
18 indicated generally at 60. In this implementation, multiple users 62, 64 can
19 utilize the same client machines 66 through the Internet 68. In this
20 implementation, the client machines 66 can include client computers that have
21 less storage memory, such as a Personal Digital Assistant ("PDA") or a laptop.
22 Because of the limit on the storage memory, the personal imaging repository 70
23 for storing user's data 72 is located on a second computer 74, which can also be
24 a server computer or just a linked client machine 66. In this example, the
25 second computer 74 is a server, which will be herein referred to as a store
26 server to distinguish it from the servers for printing. Users 62, 64 are assigned
27 different user profiles for accessing the personal imaging repository 70 through

1 the store server 74. Although not shown, the personal imaging repository 70
2 can similarly be implemented with a composition store and an imaging data
3 store, where the data 72 can be stored.

4 Preferably, a first user 62 initially accesses the system 60 with a
5 login name and password. Once the first user 62 has access to the system 60,
6 the first user then also has access to the personal imaging repository 70 that is
7 linked to this first user's login name. Similarly, if a second user 64 logs in with
8 a login name and password, the second user has access to the system 60,
9 including the personal imaging repository 70 that belongs to this second user's
10 login name. In this implementation, users can access the system 60 and their
11 personal imaging repository 70 from any computers that have a browser and
12 Internet access. As a result of the flexibility of the Internet, it is possible for
13 users to access the system 60 and their personal imaging repository 70 using a
14 standard PDA and/or wireless web phone.

15 A web application content 76 can be used by the users through a
16 browser 78 that is located on the client machine 66. Similar to the previous
17 implementation, the web application content 76 is provided through a web
18 server 80. The browser 78 also contains an extension 84 for accessing the user
19 information 86, 87 that associate the different user profiles assigned to the
20 users 62, 64 to the personal imaging repository. As shown, each user profile
21 has its own user information. Alternatively, the user information can also
22 contain information for both of the user profiles. These other variations are
23 contemplated and are within the scope of the present invention.

24 Users can access a variety of servers on the Internet for the
25 printing of the target data from the web application content 76. In this
26 example, there is a first server 88 and a second server 90. The first server 88
27 provides a first print content 92 representing a single printing device 94, and

1 the second server 90 provides a second print content 96 representing a plurality
2 of printing devices 98.

3 Turning to an important aspect of the present invention, a flow
4 chart of the preferred functionality of the print method is shown in FIG. 3, and
5 indicated generally at 100. Upon the user selecting PRINT or PRINT
6 PREVIEW on the web application content (block 102), the web application
7 content first creates a URL request (block 104), which is sent to the web server
8 (block 106). Shown as an example in FIG. 5, a user creates a document using
9 the web application, and, from the web application, the users can select to
10 PRINT the document (i.e., the target data) to a specific URL (i.e., the print
11 destination).

12 In response to the URL request, the web server constructs an
13 imaging data of the target data (block 108). However, the step of constructing
14 the imaging data can also be done by other components, such as the web
15 application content. The implementations of performing these steps are meant
16 to be flexible depending on the chosen configuration of network system. These
17 alternative implementations are contemplated and are within the scope of the
18 present invention.

19 An imaging data generally refers to digital data capable of being
20 represented as two dimensional graphics of the target data, which might not
21 look the same as the target data depending on the behavior of the web
22 application. This step of constructing an imaging data may not be necessary,
23 and this depends on the implementation and configuration of the print
24 destination. For example, if you are sending a graphic file to the earlier
25 example of an auction site for making an auction page with the graphic file, an
26 imaging data might not have to be generated in this case. Instead, the print
27 destination server would take the target data without further modification for

1 compatibility. However, since it is hard to foresee what type of graphic files
2 the web site will accept, the preferred method is implemented with this step of
3 constructing imaging data to guarantee uniformity and compatibility. The
4 preferred format for the imaging data is preferably JPEG, Graphics Interchange
5 Format ("GIF"), Portable Network Graphics Format, Tagged Image File
6 Format ("TIFF"), PDF and Microsoft Windows bitmap format ("BMP").

7 After the web server constructs the imaging data for the target
8 data (block 108), the web application content transfers the imaging data to the
9 personal imaging repository (block 110). It is then determined whether the
10 personal imaging repository is located on the client computer or the store server
11 (block 112). If the personal imaging repository is located on the client (block
12 112), the imaging data is saved to the repository without further connection
13 (block 114). If, however, the repository is located on the store server (block
14 112), the client machine will connect to the store server (block 116). It is then
15 determined whether the connection is successful before the timeout (block
16 118), and the client machine will keep trying to connect to the store server until
17 a timeout or connection is successful (block 116). Once the connection with
18 the store server is successful (block 118), the client transfers the imaging data
19 to the store server (block 120) for storage in the personal imaging repository
20 (block 114).

21 After the imaging data is stored in the personal imaging
22 repository (block 114), the web application content directs the browser to the
23 server indicated by the print destination (block 122), which will be referred to
24 as the print destination server. It is next determined whether the print
25 destination server is available for printing (block 124). An error message is
26 sent to the user (block 126) if the print destination server is not available (block
27 124). If, on the other hand, the print destination server is available (block 124),

1 it will respond to the browser by returning a print content (block 126), which
2 will be displayed on the browser for user configuration (block 128). The print
3 content is generally a web page that is designed according to the services that
4 this print destination provides. Furthermore, there are a number of ways to
5 implement the print content depending on the services available. For example,
6 the print content can be configured to display a list of imaging data stored the
7 personal imaging repository. In this scenario, the print content will access the
8 personal imaging repository to obtain the list for display to the user. These
9 other variations are contemplated and should be considered within the scope of
10 the present invention.

11 As an example, if the print destination server provides multiple
12 printing devices, a page of the print content may contain all the printing devices
13 that are available for user selection (shown in FIG. 6). From this page of the
14 print content, the user selects a printing device, another page will be returned to
15 the user with the imaging data and the configurations that are available for this
16 particular printing device (shown in FIG. 7). Through the print content, the
17 user is able to print or print preview the imaging data according to the
18 configurations of the printing devices (shown in FIG. 7). In the auction site
19 example, the users can preview the auction page that they configured before
20 posting onto the auction list. As shown, the print content can be returned with
21 multiple pages depending on the need of the services provided by the print
22 destination server.

23 Once the user configuration is finalized, the user can then select
24 to PRINT or PRINT PREVIEW from the print content (block 130). The print
25 content accesses the imaging data from the personal imaging repository (block
26 132), and transfers the imaging data with the specified user configuration to the
27 print destination server (block 134), in which the imaging data is printed or

1 displayed according to the specified configurations including the selected
2 printing device (block 136). At the end, the print content can return a status
3 page to indicate successful output to the printing device (shown in FIG. 8).

4 The preferred functionality of the store method is shown in FIG.
5 4, and indicated generally 150. The store method is initiated by the step of
6 storing imaging data in the personal imaging repository (block 114) first shown
7 in FIG. 3. The web application content first logs into the imaging data store
8 service (block 152). At this point, it is determined whether the connection to
9 the imaging data store is successful (block 154), and if not, an error message is
10 sent to the user (block 156). Once it is established that a connection to the
11 imaging data store is successful (block 154), the web application content
12 preferably converts the imaging data into a predefined format, such as JPEG,
13 (block 158). It is preferred that a predefined format and a conversion step for
14 the predefined format are included, however, the present invention can also be
15 implemented without the predefined format. In fact, the implementation of the
16 personal imaging repository is not limited to the composition store and the
17 imaging data store. There are numerous ways to implement the personal
18 imaging repository. As a result, the transfer method can be implemented in
19 various ways depending on the physical implementation of the personal
20 imaging repository, and these various methods are within the scope of the
21 present invention.

22 After the imaging data is in the predefined format (block 158), it
23 is transferred to the imaging data store by the web application content (block
24 160). The web application content next obtains a reference to the transferred
25 imaging data stored in the imaging data store (block 162), and logs out of the
26 imaging data store (block 164) and log into the composition store (block 166).
27 It is then determined whether the connection to the composition store is

1 successful (block 168). An error message is sent to the user (block 170) if the
2 connection was unsuccessful (block 168). After a successful connection to the
3 composition store (block 168), the web application content creates an imaging
4 composition (block 172) and adds the reference to the imaging data stored in
5 the imaging data store obtained earlier in the imaging composition (block 174).
6 This newly created imaging composition is then saved to the composition store
7 (block 176), and makes the imaging composition the selected composition in
8 the composition store (block 178). Because the imaging composition is set as
9 the selected composition, it will be used by web services that make use of the
10 selected composition of the personal imaging repository. Finally, the web
11 application content logs out of the composition store (block 180), which brings
12 the method to an end (block 182).

13 It should be noted that the order of the methods can be varied and
14 changed depending on the implementation of the present invention. An
15 alternative method is logging into either one of the stores, and upon successful
16 connection, the requested web service then immediately logs into the other
17 store prior to performing any further steps. More specifically, for example, the
18 requested web service can first log into the imaging data store. Upon a
19 successful connection with the imaging data store, the requested web service
20 next logs into the composition store. Once it is established that the requested
21 web service has successfully logged into both the imaging data store and the
22 composition store, only then would the remaining steps be processed. This
23 alternative method ensures that the imaging data is not unnecessarily
24 transferred to the imaging data store when an imaging composition of the
25 transferred imaging data can not be added to the composition store due to a
26 connection failure. This method is especially preferred when the composition

1 store resides on a separate location other than the imaging client as shown in
2 FIG. 2.

3 From the foregoing description, it should be understood that an
4 improved system and method for printing target data from a web application
5 has been shown and described, which has many desirable attributes and
6 advantages. The system and method provides printing from a web application
7 that is independent of the configuration of the browser. Furthermore, because
8 the print destination server can return with specific print content that relates to
9 a selected device or services, the present invention allows a preview of the print
10 job in the context of the devices and/or services offered by the print destination
11 server. This is extremely helpful, since the print content can be designed in
12 such a way that the services offered by the print destination server are also
13 independent of the operating system, which allows for greater flexibility with
14 fewer limitations.

15 While various embodiments of the present invention have been
16 shown and described, it should be understood that other modifications,
17 substitutions and alternatives are apparent to one of ordinary skill in the art.
18 Such modifications, substitutions and alternatives can be made without
19 departing from the spirit and scope of the invention, which should be
20 determined from the appended claims.

21 Various features of the invention are set forth in the appended
22 claims.

WHAT IS CLAIMED IS:

- 1 1. A system for printing target data from a web application
2 used through a browser of a client computer that is operatively connected to a
3 web server providing the web application, comprising:
4 a client computer having a browser for using the web application;
5 a web server for providing the web application;
6 a web application content for providing the web application on
7 said browser; and,
8 a print destination server specified by the user for printing the
9 target data;
10 wherein the web application content directs the browser to said
11 print destination server responsive to user print selection.
- 1 2. The system as defined in claim 1 wherein said web
2 application content creates and sends a URL request to said web server
3 responsive to user print selection.
- 1 3. The system as defined claim 2 wherein said web server
2 constructs imaging data for the target data upon user print selection.
- 1 4 The system as defined in claim 3 wherein said imaging
2 data is digital data of the target data that is capable of being represented as two
3 dimensional graphics.
- 1 5. The system as defined in claim 1 further comprising a
2 personal imaging repository for storing data associated with a user profile.
- 1 6. The system as defined in claim 5 wherein said web
2 application content transfers data to said personal imaging repository
3 responsive to print selection.

1 7. The system as defined in claim 5 wherein said personal
2 imaging repository is located on said client.

1 8. The system as defined in claim 5 wherein said personal
2 imaging repository is located on a store server.

1 9. The system as defined in claim 5 wherein said personal
2 imaging repository is an exchange infrastructure between the data and the
3 available web services.

4 10. The system as defined in claim 5 wherein said personal
5 imaging repository comprises an imaging data store assigned to the user profile
6 for storing imaging data.

7 11. The system as defined in claim 5 wherein said personal
8 imaging repository comprises a composition store for storing imaging
9 compositions of the imaging data that are serviced as a single unit.

10 12. The system as defined in claim 11 wherein said imaging
11 composition comprising a link reference for each imaging data that is serviced
12 as a single unit.

13 13. The system as defined in claim 1 wherein said print
14 destination server is indicated by a Uniform Resource Locator in said URL
15 request.

1 14. The system as defined in claim 1 wherein said print
2 destination server sends a print content responsive to said browser being
3 directed to said print destination server.

1 15. The system as defined in claim 14 wherein said print
2 content is for user configuration of printing on said print destination server.

1 16. The system as defined in claim 15 wherein said print
2 content transfers said target data with specified configuration to said print
3 destination server for printing.

1 17. The system as defined in claim 1 wherein said web
2 application directs said browser of said client computer to the print destination
3 server.

1 18. A method for printing target data from a web application
2 used through a browser of a client computer that is operatively connected to a
3 web server providing the web application, said method comprising the steps of:
4 sending a web application content by the web server to the
5 browser responsive to a request for web content by the browser;
6 sending an URL request for printing the target data responsive to
7 user print selection on said web application content;
8 directing the browser to a print destination server indicated by
9 said URL request by said web application content; and,
10 printing the target data according with user specified print
11 configuration by said print destination server.

1 19. The method according to claim 18 wherein said step of
2 sending an URL request further comprising the step of transferring the target
3 data to a personal imaging repository.

1 20. The method according to claim 18 wherein prior to said
2 step of sending an URL request further comprising the steps of creating said
3 URL request according to user selection.

1 21. The method according to claim 18 wherein prior to said
2 step of directing the browser further comprising the steps of:

3 determining whether said print destination server is available;
4 and,

5 returning an error message when said print destination server is
6 not available.

1 22. The method according to claim 18 wherein said step of
2 directing the browser further comprising the steps of:

3 returning print content for print configuration by said print
4 destination server;

5 accessing the target data by said print content responsive to user
6 print selection on said print content; and,

7 transferring the target data with specified print configuration to
8 said print destination server.

1 23. A computer program product comprising a computer
2 usable medium having computer readable program codes embodied in the
3 medium that when executed causes a computer to:

4 send a web application content by a web server to a browser
5 responsive to a request for web content by the browser;

6 send a URL request for printing the target data to a web server
7 responsive to user print selection on a web application;

8 direct said browser to a print destination server indicated by said
9 URL request by said web application content; and,

10 print the target data according to user specified print
11 configuration by said print destination server.

1 24. A computer program product comprising a computer
2 usable medium having computer readable program codes embodied in the
3 medium that when executed causes a computer to:

4 send an URL request for printing said target data to a web server
5 responsive to user print selection on a web application;

6 construct imaging data for said target data by said web server
7 responsive to said URL request;

8 send web application content by said web server to said browser
9 responsive to said URL request;
10 store said imaging data to a personal imaging repository; and,
11 print said imaging data in accordance with a print configuration
12 specified by said print destination server.

1 25. A method for printing target data from a web application
2 used through a browser of a client computer that is operatively connected to a
3 web server providing said web application, said method comprising the steps
4 of:

5 sending a web application content by a web server to a browser
6 responsive to a request for web content by the browser;

7 sending an URL request for printing the target data to said web
8 server responsive to user print selection on web application;

9 constructing imaging data for the target data responsive to said
10 URL request;

11 storing said imaging data to a personal imaging repository; and,
12 printing said imaging data in accordance with a print
13 configuration specified by said print destination server.

1 26. The method according to claim 25 wherein prior to said
2 step of printing said imaging data further comprising the steps of:

3 directing said browser to a print destination server indicated by
4 said URL request by said web application content;

5 returning print content for print configuration by said print
6 destination server;

7 accessing said imaging data by said print content responsive to
8 user print selection on said print content; and,

9 transferring said imaging data with a specified print configuration
10 to said print destination server.

1 27. The method according to 25 wherein prior to said storing
2 said imaging data further comprising the steps of:

3 determining whether said personal imaging repository is located
4 on said client computer or a store server computer;

5 connecting to said store server when said personal imaging
6 repository is located on a store server computer;

7 determining whether the connection between said client computer
8 and said store server computer is successful; and,

9 transferring imaging data to said store server computer by said
10 client computer.

1 28. A method for printing imaging data from a web
2 application used through a browser of a client computer that is operatively
3 connected to a web server providing said web application, wherein said web
4 application is linked to a personal imaging repository having an imaging data
5 store for storing the imaging data and a composition store for storing imaging
6 compositions with links to the imaging data serviced as a single unit, said
7 method comprising the steps of:

8 requesting to print the imaging data from the web application to a
9 print destination server by the browser;

10 transferring imaging data to a personal imaging repository by said
11 web application responsive to the print request by the browser; and,

12 printing the imaging data by the print destination server;

13 wherein said personal imaging repository is an exchange
14 infrastructure between the imaging data and available web services.

1 29. The method according to claim 28 wherein said step of
2 transferring imaging data to a personal imaging repository further comprising
3 the steps of:

4 connecting with the imaging data store of the personal imaging
5 repository; and,

6 transferring the imaging data to the imaging data store.

1 30. The method according to claim 29 further comprising the
2 steps of:

3 obtaining a link reference of the imaging data stored in the
4 personal imaging data store; and,

5 disconnecting from the imaging data store by the scanning
6 device.

1 31. The method according to claim 29 wherein said step of
2 connecting with the imaging data store further comprising the steps of:

3 determining whether the connection with the imaging data store
4 is successful;

5 returning an error message to the user when the connection is not
6 successful; and,

7 converting the imaging data into a predefined format.

1 32. The method according to claim 31 wherein said predefined
2 format is any one from the group consisting of:

3 Joint Photographic Experts Group Format;

4 Graphics Interchange Format;

5 Portable Network Graphics Format;

6 Tagged Image File Format;

7 Portable Document Format; and,

8 Microsoft Windows bitmap format.

1 33. The method according to claim 29 further comprising the
2 steps of:

3 obtaining a link reference of the imaging data stored in the
4 personal imaging data store;

5 connecting with the composition store of the personal imaging
6 repository indicated from the user information;

7 creating an imaging composition having a link reference to the
8 imaging data stored in the personal imaging data store; and,

9 saving the imaging composition to the composition store.

1 34. The method according to claim 33 further comprising the
2 steps of:

3 setting the imaging composition as a selected composition
4 available for access in the composition store; and,

5 disconnecting from the composition store of the personal imaging
6 repository.

1 35. The method according to claim 33 wherein prior to the
2 step of creating an imaging composition further comprising the steps of:

3 determining whether the connection with the composition store is
4 successful; and,

5 returning an error message to the user when the connection to the
6 composition is not successful.

1 36. The method according to claim 33 wherein said step of
2 creating an imaging composition further comprising the step of adding the link
3 reference of the imaging data stored in the imaging data store to the imaging
4 composition.

1 37. A computer program product comprising a computer
2 usable medium having computer readable program codes embodied in the

3 medium that when installed in a web application linked to a personal imaging
4 repository with an imaging data store for storing the imaging data and a
5 composition store for storing imaging compositions with links to the imaging
6 data serviced as a single unit, the product causes the scanning device to:
7 request print for the imaging data from the web application to a
8 print destination server by the browser;
9 transfer imaging data to a personal imaging repository by said
10 web application responsive to the print request by the browser; and,
11 print the imaging data by the print destination server;
12 wherein said personal imaging repository is an exchange
13 infrastructure between the imaging data and available web services.

1 **ABSTRACT OF THE DISCLOSURE**

2 A system for printing target data from a web application used
3 through a browser of a client computer that is operatively connected to a web
4 server providing the web application. The system includes a client computer
5 having a browser for using the web application, a web server for providing the
6 web application, a web application content for providing the web application
7 on the browser, and a print destination server specified by the user for printing
8 the target data. The web application content further directs the browser to the
9 print destination server responsive to user print selection.

1/6

10

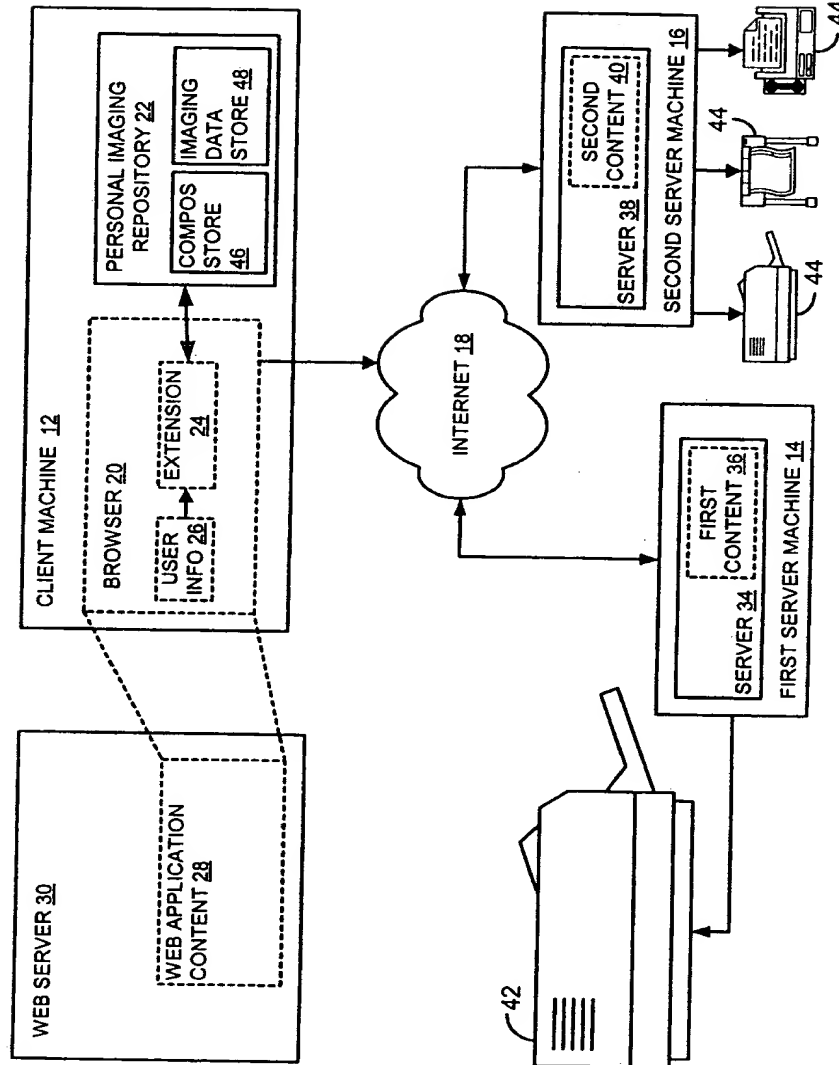


FIG. 1

2/6

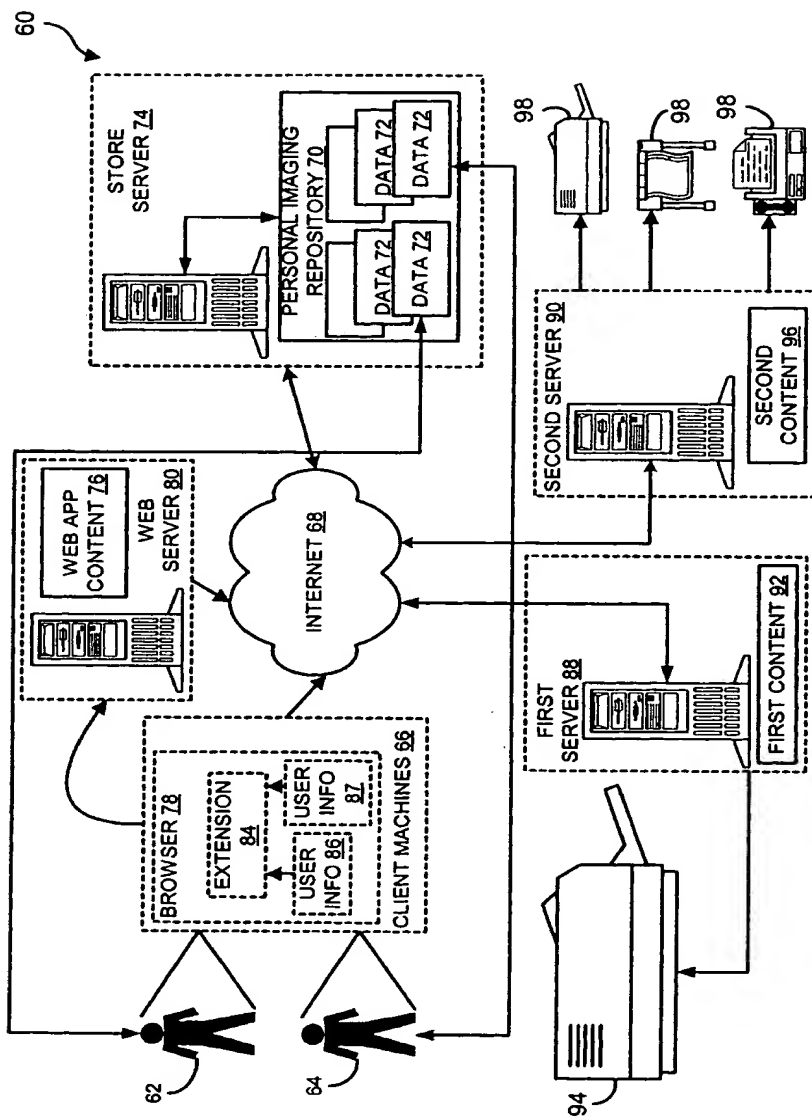


FIG. 2

3/6

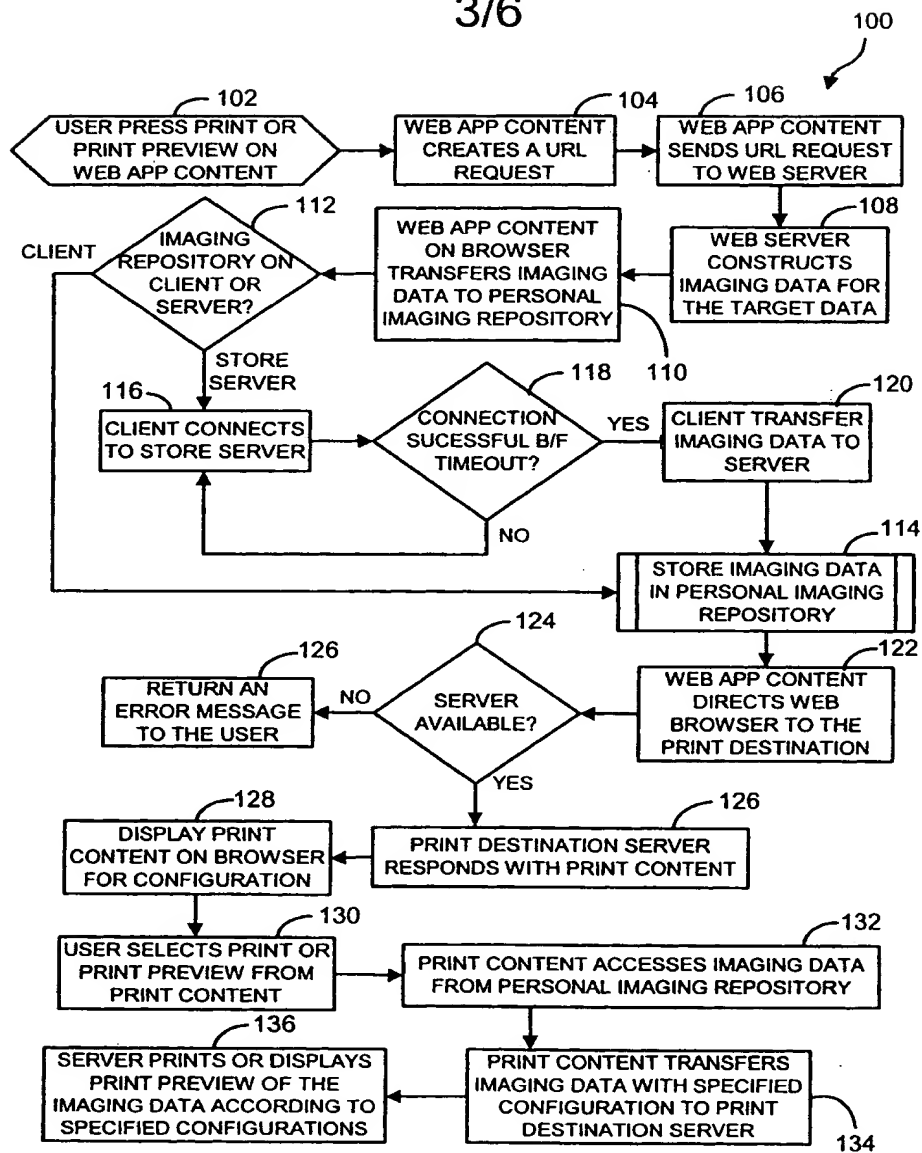


FIG. 3

4/6

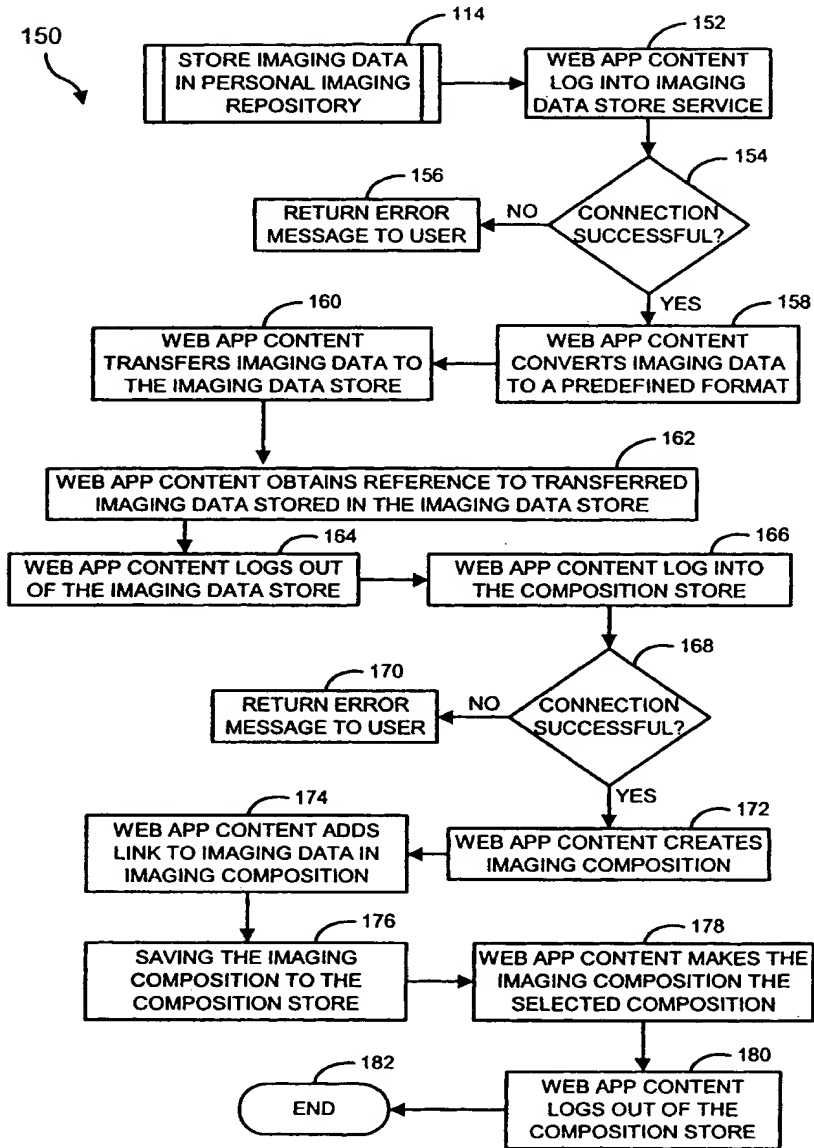


FIG. 4

5/6

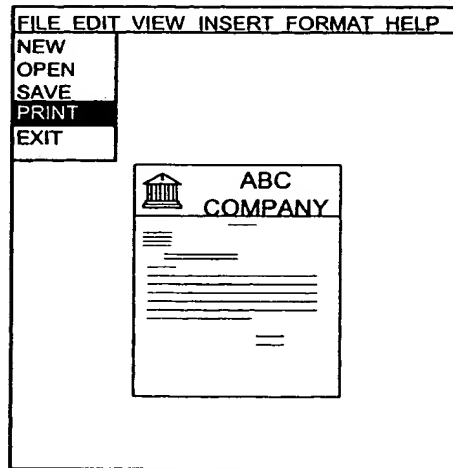


FIG. 5

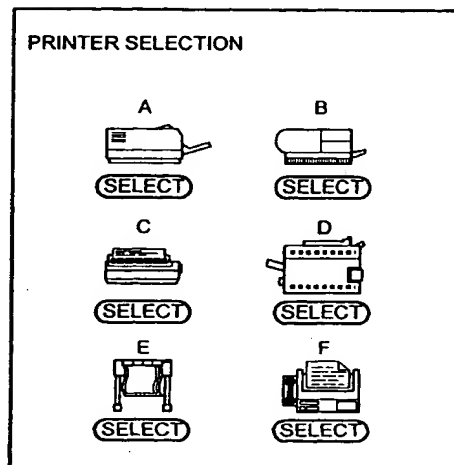


FIG. 6

6/6

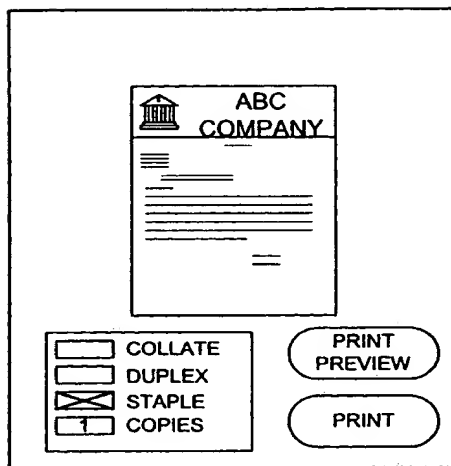


FIG. 7

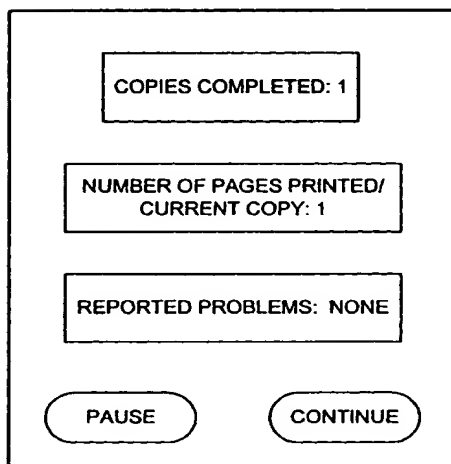


FIG. 8

DECLARATION AND POWER OF ATTORNEY
FOR PATENT APPLICATION

ATTORNEY DOCKET NO. 10007649-1

As a below named inventor, I hereby declare that:

My residence/post office address and citizenship are as stated below next to my name;

I believe I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled:

System And Method For Printing From A Web Application

the specification of which is attached hereto unless the following box is checked:

() was filed on _____ as US Application Serial No. or PCT International Application
Number _____ and was amended on _____ (if applicable).

I hereby state that I have reviewed and understood the contents of the above-identified specification, including the claims, as amended by any amendment(s) referred to above. I acknowledge the duty to disclose all information which is material to patentability as defined in 37 CFR 1.56.

Foreign Application(s) and/or Claim of Foreign Priority

I hereby claim foreign priority benefits under Title 35, United States Code Section 119 of any foreign application(s) for patent or inventor(s) certificate listed below and have also identified below any foreign application for patent or inventor(s) certificate having a filing date before that of the application on which priority is claimed:

COUNTRY	APPLICATION NUMBER	DATE FILED	PRIORITY CLAIMED UNDER 35 U.S.C. 119
			YES: _____ NO: _____
			YES: _____ NO: _____

Provisional Application

I hereby claim the benefit under Title 35, United States Code Section 119(e) of any United States provisional application(s) listed below:

APPLICATION SERIAL NUMBER	FILING DATE

U. S. Priority Claim

I hereby claim the benefit under Title 35, United States Code, Section 120 of any United States application(s) listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States application in the manner provided by the first paragraph of Title 35, United States Code Section 112, I acknowledge the duty to disclose material information as defined in Title 37, Code of Federal Regulations, Section 1.56(a) which occurred between the filing date of the prior application and the national or PCT international filing date of this application:

APPLICATION SERIAL NUMBER	FILING DATE	STATUS (patented/pending/abandoned)

POWER OF ATTORNEY:

As a named inventor, I hereby appoint the following attorney(s) and/or agent(s) to prosecute this application and transact all business in the Patent and Trademark Office connected therewith:

Customer Number 022879

Place Customer
Number Bar Code
Label hereSend Correspondence to:
HEWLETT-PACKARD COMPANY
Intellectual Property Administration
P.O. Box 272400
Fort Collins, Colorado 80527-2400

Direct Telephone Calls To:

James R. McDaniel
(208) 396-4095

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

Full Name of Inventor: Shell S. Simpson Citizenship: USResidence: 5196 N. Maidstone Way, Boise, ID 83713Post Office Address: Same as residence

Inventor's Signature

Date

3/26/01

**DECLARATION AND POWER OF ATTORNEY
FOR PATENT APPLICATION (continued)**

ATTORNEY DOCKET NO. **10007649-1**

Full Name of # 2 Joint Inventor: Ward S. Foster Citizenship: US
Residence: 3103 Hillway Drive, Boise, ID 83702
Post Office Address: Same as residence
Inventor's Signature: *Ward S. Foster* Date: 3/26/01

Full Name of # 3 Joint Inventor: Kris R. Livingston Citizenship: US
Residence: 11232 W. Hickory Bark Dr., Boise, ID 83713
Post Office Address: Same as residence
Inventor's Signature: *Kris R. Livingston* Date: 3/26/01

Full Name of # 4 Joint Inventor: _____ Citizenship: _____
Residence: _____
Post Office Address: _____
Inventor's Signature: _____ Date: _____

Full Name of # 5 Joint Inventor: _____ Citizenship: _____
Residence: _____
Post Office Address: _____
Inventor's Signature: _____ Date: _____

Full Name of # 6 Joint Inventor: _____ Citizenship: _____
Residence: _____
Post Office Address: _____
Inventor's Signature: _____ Date: _____

Full Name of # 7 Joint Inventor: _____ Citizenship: _____
Residence: _____
Post Office Address: _____
Inventor's Signature: _____ Date: _____

Full Name of # 8 Joint Inventor: _____ Citizenship: _____
Residence: _____
Post Office Address: _____
Inventor's Signature: _____ Date: _____